EnergyMGT Services

Case Study: Refrigerant Level Monitoring

Study Description

Refrigeration plant inefficiencies or failure are costly due to repairs, replacement and stock loss. Monitoring refrigerant levels can help to avoid this. Subsequent data would be used for leak detection, delivery verification and for maintaining optimal efficiency.

Non-intrusive (no drilling necessary) level sensors retro fitted to refrigerant tanks. Data is transferred using ModBus to the EnergyICT WebRTU Z2 data logger which in turn uploads the data via GPRS to the EIServer software platform.

Refrigerant Level

Average level for period Wed, 24 Jun 2009 00:00 to Fri, 26 Jun 2009 00:00

Click on the % result to open the half-hourly graph for any meter.

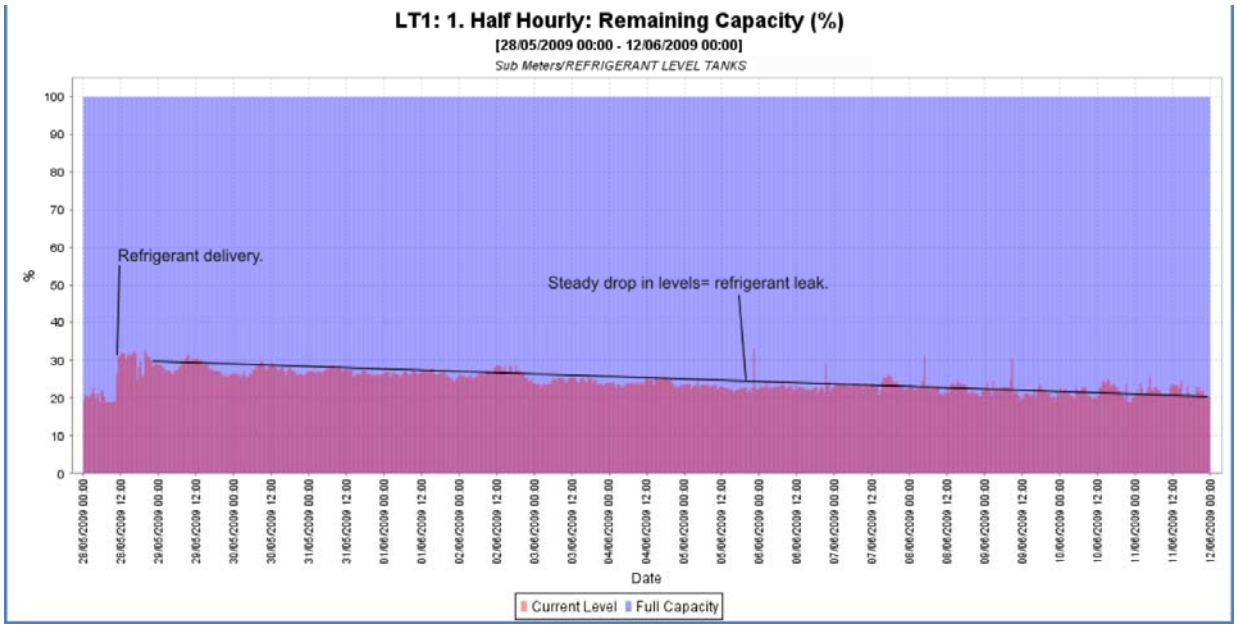
Red: average is below the lower threshold of 10%
Green: average is in the safe range
Yellow: average is above the upper threshold of 25%
Amber: average has dropped by 10% or more in 1 day

Member	Average Level Day -1	Average Level Day -2
0022 THANET | IT1	42.83%	42.92%
0022 THANET | IT2	27.44%	24.39%
0022 THANET | IT3	27.44%	24.39%
0022 THANET | LT1	19.7%	23.77%
0022 THANET | LT2	0%	0%
0055 WHITSTABLE | IT1	19.47%	19.48%
0055 WHITSTABLE | IT2	37.77%	30.49%
0055 WHITSTABLE | IT3	41.24%	41.18%
0055 WHITSTABLE | LT1	18.83%	18.76%
0055 WHITSTABLE | LT2	19.77%	20.07%
0171 CHISLEHURST | IT3	0%	0%
0171 CHISLEHURST | IT4	17.9%	19.01%
0171 CHISLEHURST | LT1	20.86%	24.57%
0171 CHISLEHURST | LT2	25.08%	24.89%
0212 FOLKESTONE | IT1	19.23%	19.23%
0212 FOLKESTONE | IT2	59.9%	59.32%
0212 FOLKESTONE | IT3	32.76%	32.9%
0212 FOLKESTONE | LT1	26.44%	25.53%
0212 FOLKESTONE | LT2	31.01%	30.9%
0391 HORSHAM | IT1 new	18.86%	18.79%
0391 HORSHAM | IT1-LT1	18.86%	18.79%
0391 HORSHAM | IT2-LT2	10.62%	13.47%

The report above can be accessed via the Webclient. Sites can be sorted to highlight all sites with issues.

The report is colour coded in order to instantly identify sites with an issue.
Green = levels in safe range.
Red = Levels below lower threshold
Yellow = Levels above upper threshold
Amber = Leak detected (average drops by 10% or more in one day.)

Clicking on any site (*) with an issue will navigate to a bar graph of refrigerant levels for any period allowing the user to further investigate if required (see next graph).



In the case above it is clear that initially the refrigerant level was below acceptable levels: a delivery of refrigerant was then made. A leak, so severe that the amount of refrigerant delivered had leaked out of the system within 12 days, was quickly detected and flagged in the report.

EnergyICT's simple yet powerful tools give businesses transparency to view and quickly act on such issues.

Conclusion

By analyzing the profiles of the refrigerant levels, engineers can derive the state of the refrigeration plant and rectify any problems.

Using EnergyICT's powerful software, customers can view refrigerant level reports for thousands of sites.